DOCUMENT RESUME

ED 482 762 CG 032 757

| | |
|---|---|
| AUTHOR | Chambliss, Catherine |
| TITLE | The Association between Personality Factors and Self-Reported Substance Use in Adolescents. |
| PUB DATE | 2003-00-00 |
| NOTE | 15p. |
| PUB TYPE | Information Analyses (070) -- Reports - Research (143) |
| EDRS PRICE | EDRS Price MF01/PC01 Plus Postage. |
| DESCRIPTORS | *Adolescents; College Students; High School Students; Personality Measures; *Personality Traits; *Predictor Variables; *Substance Abuse |
| IDENTIFIERS | Five Factor Model of Personality |

ABSTRACT

High school and college students (N=321) completed the Mini Markers Five Factors Personality Scale (MMFFPS) and items assessing recent substance use, in order to permit an assessment of the relationship between five basic personality factors and reported use of cigarette, alcohol, and marijuana. A 2 x 2 MANOVA (personality factors; low and high; sex; male and female) on three types of self-reported substance use (cigarette, alcohol, and marijuana) was performed for each of the five personality factors assessed by the MMFFPS (openness, conscientiousness, extraversion, agreeableness, and neuroticism). A significant extraversion main effect was found for alcohol and marijuana use, and a significant conscientiousness main effect emerged on the alcohol use measure. A significant sex by conscientiousness interaction was obtained. No main effect emerged for sex on any of the three substance use measures. (Contains 20 references and 2 tables.) (Author)

Reproductions supplied by EDRS are the best that can be made
from the original document.

# The association between personality factors and self-reported substance use in adolescents

ED 482 762

Catherine Chambliss

Ursinus College

Summary- High school and college students (N= 321) completed the Mini Markers Five Factors Personality Scale (MMFFPS; Saucier, 1992) and items assessing recent substance use, in order to permit an assessment of the relationship between five basic personality factors and reported use of cigarette, alcohol, and marijuana. A 2 x 2 MANOVA (personality factors; low and high; sex: male and female) on three types of self-reported substance use (cigarette, alcohol, and marijuana) was performed for each of the five personality factors assessed by the MMFFPS (openness, conscientiousness, extraversion, agreeableness, and neuroticism). A significant extraversion main effect was found for alcohol and marijuana use, and a significant conscientiousness main effect emerged on the alcohol use measure. A significant sex by conscientiousness interaction was obtained. No main effect emerged for sex on any of the three substance use measures.

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

C. CHAMBLISS

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)



CG032757

BEST COPY AVAILABLE

## Introduction

Personality factors have long been presumed to influence substance use. Representative work from the last five decades has established a modest but fairly consistent association between certain personality characteristics and substance use. Early on, Eysenck (1967) predicted that extraversion would mediate sensitivity to various psychoactive substances. Zuckerman (1979, 1994) found that individuals with higher sensation seeking needs tend to become users earlier in life and are more prone to becoming regular users. Brennan, Walfish, and Aubuchon also found a link between impulsivity/sensation seeking and alcohol consumption (1986). Research by Wood, Cochran, Pfefferbaum, and Arneklev (1995) found that adolescents only used alcohol 10% of the time "when friends were doing it", and suggested that an individual's thrill seeking and impulsivity promote the likelihood of substance use. Other researchers have found that nonconformity and deviance are associated with multiple substance use (Wechsler, Dowdall, Davenport, & Castillo, 1995). After reviewing three decades of research on young adults' alcohol use, Baer (2002) concluded that students with a history of deviant behavior tend to use alcohol earlier and consume more during college, and that students who are more rebellious and less committed to traditional values have a higher tendency to consume alcohol. Understanding the personality trait predictors of substance use might aid in the development of more effective prevention programs and help to elucidate the mechanisms underlying substance abuse.

Stewart and Zeithlin (1995) found anxious individuals were more likely to use both alcohol and cigarette smoking as a coping strategy. Comeau, Stewart, & Loba (2001) examined how anxiety and sensation seeking relate to adolescents' use of alcohol,

cigarettes, and marijuana, and found that all of the personality factors they examined were associated with substance use patterns. Sensation seeking was related to use of alcohol for enhancement reasons, while anxiety sensitivity was associated with alcohol and marijuana use motivated by conformity desires. Personality factors were more strongly associated with alcohol use than marijuana and cigarette use (Comeau, et al., 2001). Wagner (2001) found both sensation seeking and anxiety sensitivity to predict substance use. While sensation seeking was positively linked to alcohol and drug use, this work revealed a negative correlation between anxiety sensitivity and substance use (Wagner, 2001).

However, some investigating the link between personality and substance use have met with frustration. For example, Rutledge & Sher (2001) failed to find the link they had hypothesized between alcohol use and neuroticism/negative emotionality and extraversion/sociability, although they did obtain some evidence that behavioral undercontrol was predictive of heavy drinking. Zuckerman (1987) suggests that social attitudes toward substances mediate the relationship between personality and use. He notes that as social acceptance of substance use increases, the relationship between sensation seeking and substance use decreases. Therefore, a substance that is considered risky and less widely sanctioned would present a stronger relationship between sensation seeking and substance use. Since personality factors probably interact with variables such as gender and age in shaping substance habits, it is important to investigate the impact of multiple factors simultaneously. Further examination of the relationship between substance use and basic personality factors operating in conjunction with demographic variables may help to clarify some of the contradictions encountered in previous research.

Many who expect a relationship between personality types and substance use preferences also predict that those using different substances require different treatment approaches. Clinicians have long debated whether type of substance used should dictate differential treatment, and whether substance users should be grouped homogenously on the basis of their choice of substance. Empirical findings indicate greater similarities than differences between alcohol-dependent and drug-dependent patients, when adequate statistical controls are exercised for critical demographics variables such as age, race, and sex (Carroll & Chambliss, 1990; Carroll, 1982; Carroll, Malloy, Roscioli, Pindjack, & Clifford, 1982). This work suggests that common factors are likely to underlie the various types of substance use.

Those who emphasize self medication motivation for substance use predict that users will select the substance whose psychoactive properties best address their idiosyncratic need(s). For example, since alcohol is a powerful central nervous system depressant and calmative, its appeal might be expected to be different from that of stimulants or hallucinogens. Those with a higher need for stimulation should seek out substances likely to impart this effect. Variation on personality measures presumably reflects differences in such underlying needs. For instance, extraverts have long been understood to have greater preferences for external stimulation, while introverts seem to actively avoid the excessive cortical arousal such stimulation produces for them.

To the extent that adolescent substance use is a means of self medicating, personality differences should predict type of substance used, because personality characteristics are associated with particular symptom tendencies (e.g., anxiety among those high in neuroticism versus boredom in those high in extraversion). Alternatively, if

more generalized sensation seeking underlies most adolescent substance use, personality variables distinct from those related to risk taking and rebellion should be unrelated to substance use.

This investigation explored the association between the five basic personality dimensions revealed by years of factor analytic research and three types of substance use by surveying high school and college students. The MMFFP Scale was selected as a measure of these personality factors because it provides an efficient assessment of the five factors repeatedly found to be most basic in accounting for personality variability across multiple populations (Costa & McCrae, 1997; McCrae & Costa, 1989). Developed by Saucier (1992), this test assesses the five empirically derived core dimensions of personality: openness, conscientiousness, extreme agreeableness, and neuroticism often (summarized by the acronym OCEAN). Each of these variables is assumed to shape how the individual experiences and responds to the environment. Differences on these five dimensions might well influence the perceived attractiveness of different substances as well as involvement in social situations where these substances are made available. Examination of the relationship between scores on these personality dimensions and substance use may help to resolve some of the inconsistencies in previous work exploring how personality affects this behavior in adolescents. In addition, it may assist in the design of preventive programs that seek to target subgroups of adolescents who may be at especially high risk of becoming compromised by substance use.

## Method

### Participants

Respondents were 180 college students (81 males, 99 females) from a small liberal arts college from a suburban area in the Northeast United States and 141 high school students (68 males, 73 females) attending a public school in the same area. One hundred seventy-two female students and 149 male students, with a combined mean age of 17.31 years, completed the survey. The survey was administered to college students enrolled in an introductory psychology course, and high school students enrolled in health education classes.

### Survey Instrument

The survey consisted of the Mini Markers Five Factors Personality Scale (MMFFP, Saucier, 1992) and items assessing the subject's reported substance abuse behavior and demographic variables. The MMFFP consists of 40 alphabetized self-descriptive personality characteristics that respondents endorse using a 10-point Likert scale; it yields summary scores on five basic personality traits (openness, conscientiousness, extreme agreeableness, and neuroticism). The frequency of the participant's cigarette, alcohol, and marijuana use was assessed using self report items developed by Wechsler, et al.(1998). On these scales 1 denotes never having used, 2=used, but not in the past 12 months, 3=used, but not in the past 30 days, 4=used in the past 30 days, and 5=used on a daily basis.

## Results

During the previous month, 59% of the students reported having used alcohol, one quarter reported smoking tobacco, and one quarter reported using marijuana. Reported daily use of the three substances was 9%, 12%, and 7%, respectively. While only 17% of these students had never tried alcohol, half reported never using cigarettes and half declared no history of marijuana use.

Directionally adjusted items were totaled to create summary scores for openness, conscientiousness, extraversion, agreeableness, and neuroticism. A median split was performed on the summary scores for each of the five personality factors to create high and low level groups for each of the five traits.

Multivariate analyses of variance were used to evaluate sex and personality effects for each of the five factors assessed. A 2 x 2 MANOVA (sex: male and female; extraversion: low and high) on each of the three types of self-reported substance use (cigarette, alcohol, and marijuana) revealed a significant extraversion main effect for alcohol use (high: $x=3.43$, $s.d.=1.18$, $n=160$ versus low: $x= 3.02$, $s.d.=1.31$, $n=161$; $F=5.48$, df 1/313, $p<.05$) . Significant differences in marijuana use for the high and low extraversion groups were also found (high: $x=2.30$, $s.d.=1.40$, $n=160$ versus low: $x= 1.98$, $s.d.=1.33$, $n=161$; $F=3.97$, df 1/313, $p<.05$).

A significant conscientiousness main effect was obtained on the alcohol use measure (high: $x=3.15$, $s.d=1.26$, $n=172$ versus low: $x=3.32$, $s.d.=1.25$, $n=149$; $F=4.99$, df=1/317, $p<.05$). Conscientiousness and sex yielded a significant interaction effect on the measure of alcohol use ($F=9.40$, df=1/317, $p<.01$; see Table 1).

Table 1

Self-reported alcohol use for high conscientious and low conscientious male and female respondents.

| | Males | Females |
|---|---|---|
| Low Conscientiousness | x=3.02<br>s.d.=1.33<br>n=89 | x=3.21<br>s.d.=1.23<br>n=76 |
| High Conscientiousness | x=3.77<br>s.d.=.98<br>n=60 | x=3.09<br>s.d.=1.30<br>n=96 |

Although no significant main effects emerged for openness, agreeableness, or neuroticism, a trend in the data suggested a possible neuroticism by sex interaction on the measure of alcohol use ($F=2.97$, $df=1/317$, $p<.08$; see Table 2).

Table 2

Self-reported alcohol use for high neurotic and low neurotic male and female respondents.

| | Males | Females |
|---|---|---|
| Low Neuroticism | x=3.44<br>s.d.=1.61<br>n=81 | x=3.02<br>s.d.=1.29<br>n=78 |
| High Neuroticism | x=3.17<br>s.d.=1.35<br>n=68 | x=3.24<br>s.d.=1.24<br>n=94 |



BEST COPY AVAILABLE

## Discussion

Consistent ,th previous research, this study found a link between extraversion and reported use of both alcohol and marijuana. Extraverts' customary preference for social situations which are standard settings for alcohol use during the high school and college years, is likely to increase their access to these substances and their exposure to norms favoring use. Additionally, their affinity for external stimulation and sensation seeking probably increase the appeal of illegal substance use. The absence of a significant relationship between extraversion and cigarette use may be due in part to tobacco's legality.

The observed relationship between conscientiousness and alcohol use was not surprising; less conscientious students reported that they drank more. However, separate consideration of the reports of men and women indicated an unexpected exception to this regularity. For males, high conscientiousness was associated with significantly greater alcohol consumption. This could be due to conscientious male students' feeling greater pressure to perform well in school and extracurricular activities, and consequently using alcohol as a socially sanctioned way to release resultant tension. Highly conscientious female students may find that their use of alcohol for this purpose is not as strongly supported by peers. Alternatively, these findings may be artifactual, reflecting more honest self reporting of alcohol use on the part of the more conscientious men. However, if this accounts for their higher scores, one would need to

explain why highly conscientious females do not offer similarly honest accounts of their own behavior.

The failure to find an association between conscientiousness and marijuana use suggests that adolescents who see themselves as highly conscientious may not see this as being incongruent with certain types of illegal substance use. Many of these ordinarily conscientious adolescents may challenge the authority that defines marijuana use as illegal, and may thereby rationalize their use as consistent with their self-perceived responsibility.

Although more neurotic students did not make heavier use of alcohol and marijuana, as might be predicted by those emphasizing the role of self medication in motivating adolescent substance use, a trend in the results suggests the possibility of an interesting interaction between sex and neuroticism in shaping alcohol use. For females, high neuroticism was somewhat associated with greater use of alcohol use, while for males the opposite was true. The motivation for alcohol use during the adolescent period may be different for women and men. Females who are high in neuroticism seem to be more likely than their highly neurotic male peers to consume alcohol as a means of alleviating their anxiety. Male adolescents' drinking may be less a form of self medication and more a function of thrill seeking. Less neurotic males, presumably being less anxiety prone, might be more inclined to seek high stimulation and endure the hazards associated with engaging in illegal underage drinking. Alternatively, the observed differences may be due to the disparate impact of neuroticism on popularity among males and females. If anxiety is more socially acceptable in females than in males, neuroticism would exact a different toll on the popularity of female and male

adolescents. Consequently, highly neurotic females may be more likely than highly neurotic males to be popular and therefore more apt to participate in social activities that promote alcohol use.

Those concerned about reducing underage use of alcohol as a means of self medicating anxiety symptoms might wish to focus their energies especially on highly anxious adolescent females. However, since the greatest alcohol use was found among less neurotic males, ongoing attention to high sensation seeking adolescent males is certainly justified. The absence of a significant relationships between neuroticism and marijuana use challenges the notion that highly anxious adolescents are at greater risk of using this substance in order to alienate suffering due to neurotic worrying.

References

Baer, J.S. (2002). Student Factors: Understanding individual variation in college drinking. Special Issue: College drinking, what it is, and what to do about it: Review of the state of the science. Journal of Studies on Alcohol, 14, 40-53.

Brennan, A.F., Walfish, S., & AuBuchon, P. (1986). Alcohol use and abuse in college students: I. A review of individual and personality correlates. Int. Journal of Addiction, 21, 475-493.

Carroll, J. F. & Chambliss, C. A. (1990). *A Comparison of the Self-Reported Problem of Alcoholics, Drug Dependent Persons, and Multiple Drug Dependent Persons at Admission.* Alcoholism Treatment Quarters, 7(4) 3-39.

Carroll, J. F. X., Personality and psychopathology: A comparison of alcohol and drug-dependent persons. In J. Solomon and K.A. Keeley (Eds.) *Perspectives in Alcohol And Drug Abuse: Similarities And Differences,* Boston: John Wright PSG Inc., 1982, Ch. 4, 59-88.

Carroll, J. F. X., Malloy, T. E., Roscioli, D. L., Pindjack, G. M., and Clifford, J. S. Similarities and differences in self-concepts of alcohol and drug addicted women. *Journal of Studies on Alcohol,* 1982, 43(7), 725-738.

Comeau, N., Stewart, S. H., & Loba, P. (2001). The relations of trait anxiety, anxiety sensitivity, and sensation seeking to adolescents' motivations for alcohol, cigarette, and marijuana use. Addictive Behaviors, 26, 803-825.

of alcohol use. Journal of Personality and Social Psychology, 69, 990-1005.

Costa, P. T., Jr., & McCrae, R. R. (1997). Longitudinal stability of adult personality. Handbook of personality psychology, 269-291.

Eysenck, H.J. (1967). The Biological Basis of Personality. Springfield IL:Charles C. Thomas.

McCrae, R. R, & Costa, P. T. (1989). The structure of personality traits: Wiggins' circumplex and the five-factor model. Journal of Personality and Social Psychology, 56, 586-595.

Nezlek, J.B., Pilkington, C.J., and Bilbro, K.G. (1994). Moderation in excess: Binge drinking and social interaction among college students. Journal of Studies on Alcohol, 55, 342-351.

Rutledge, P.C. & Sher, K.J. (2001). Heavy drinking from the freshman year into early young adulthood. The role of stress, tension-reduction drinking motives, gender, and personality. Journal of Studies on Alcohol, 62(4), 457.

Saucier, G. (1992). Mini-Markers: A brief version of Goldberg's unipolar Big-Five markers. Journal of Personality, 63, 506-512.

Stewart, S.H., & Zeithlin, S.B. (1995). Anxiety sensitivity and alcohol use motives. Journal of Anxiety Disorders, 9, 229-240.

Wagner, M.K. (2001). Behavioral characteristics related to substance abuse and risk-taking, sensation-seeking, anxiety sensitivity, and self-reinforcement. Addictive Behaviors, 26, 115-120.

Wechsler, H., Dowdall, G.W., Davenport, A., & Castillo, S. (1995). Correlates of college student binge drinking. American Journal of Public Health, 85, 921-926.

Wechsler, H., Rigotii, N.A., Gledhill-Hoyt, J., & Lee, H. (1998). Increased levels of cigarette use among college students: A cause for national concern. Journal of the American Medical Association, 280 (19), 1673-1678.

Wood, P.B., Cochran, J.K., Pfefferbaum, B., & Arneklev, B.J. (1995). Sensation seeking and delinquent substance use: An extension of learning theory. The Journal of Drug Issues, 25(1), 173-193.

Zuckerman, M. (1979). Sensation Seeking: Beyond the Optimal Level of Arousal, Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Zuckerman, M. (1987). Biological connection between sensation seeking and drug abuse. In: Engel, J., Oreland, L., Ingvar, D.H., Pernow, B., Rossner, S., and Pellborn, L.A. (Eds.) Brain Rewards Systems and Abuse, New York: Raven Press Publication, 165-176.

Zuckerman, M. (1994). Behavioral Expressions and Biosocial Bases of Sensation Seeking, New York: Cambridge University Press.

**U.S. Department of Education**
*Office of Educational Research and Improvement (OERI)*
*Educational Resources Information Center (ERIC)*

# REPRODUCTION RELEASE

(Specific Document)

## I. DOCUMENT IDENTIFICATION:

| | |
|---|---|
| Title: The association between personality factors and self-reported substance use in adolescents | |
| Author(s): Catherine Chambliss | |
| Corporate Source: Ursinus College | Publication Date: 2003 |

## II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education* (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic/optical media, and sold through the ERIC Document Reproduction Service (EDRS) or other ERIC vendors. Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following two options and sign at the bottom of the page.

☑ Check here
**For Level 1 Release:**
Permitting reproduction in microfiche (4" x 6" film) or other ERIC archival media (e.g., electronic or optical) *and* paper copy.

The sample sticker shown below will be affixed to all **Level 1** documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

**Level 1**

The sample sticker shown below will be affixed to all **Level 2** documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN OTHER THAN PAPER COPY HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

**Level 2**

☐ Check here
**For Level 2 Release:**
Permitting reproduction in microfiche (4" x 6" film) or other ERIC archival media (e.g., electronic or optical), but *not* in paper copy.

Documents will be processed as indicated provided reproduction quality permits. If permission to reproduce is granted, but neither box is checked, documents will be processed at **Level 1**.

*"I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic/optical media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries."*

| | | |
|---|---|---|
| *Sign here → please* Signature: | Printed Name/Position/Title: Catherine Chambliss, Ph.D., Chair, Psychology | |
| Organization/Address: Dept. of Psychology Ursinus College Collegeville, PA 19426 | Telephone: (610) 409 3000 | FAX: (610) 489 0627 |
| | E-Mail Address: cchambliss@ursinus.edu | Date: 12/3/03 |

## III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, *or*, if you wish ERIC to cite the availability of the document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents that cannot be made available through EDRS.)

| |
|---|
| Publisher/Distributor: |
| Address: |
| Price: |

## IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

| |
|---|
| Name: |
| Address: |

## V. WHERE TO SEND THIS FORM:

| |
|---|
| Send this form to the following ERIC Clearinghouse: |

However, if solicited by the ERIC Facility, or if making an unsolicited contribution to ERIC, return this form (and the document being contributed) to:

**ERIC Processing and Reference Facility**
**1301 Piccard Drive, Suite 100**
**Rockville, Maryland 20850-4305**

**Telephone: 301-258-5500**
**FAX: 301-948-3695**
**Toll Free: 800-799-3742**
**e-mail: ericfac@inet.ed.gov**

(Rev. 3/96/96)